WHAT IS CLAIMED:

1. An intravascular stent for use in a body lumen, comprising:

a plurality of cylindrical rings aligned along a longitudinal axis, each ring having a plurality of peaks and valleys, with the peaks and valleys defined by adjacent bar arms, including, generally linear bar arms and generally nonlinear bar arms; and

at least one link connecting each cylindrical ring to an adjacent ring to form the stent;

the nonlinear bar arms having an undulating member;

the linear bar arms having a first arm axis and the nonlinear bar arms having a second arm axis, with the first and second arm axes being at acute angles to each other; and

the links being connected to a central portion of the nonlinear bar arm on one ring and a peak of the adjacent ring.

2. The stent of claim 1, wherein alternating rows of at least one link consist of nonlinear links, and the rows of at least one link adjacent to the nonlinear links consist of linear links.

3. The stent of claim 2, wherein the nonlinear links being offset by ninety degrees from the adjacent linear links.

4. The stent of claim 2, wherein the peak connected to the nonlinear link being defined by a v-shaped bar arm, the v-shaped bar arm being disposed between the nonlinear bar arm and the linear bar arm.

5. The stent of claim 1, wherein one nonlinear bar arm in-between two linear bar arms form a unit.

6. The stent of claim 5, wherein units on adjacent cylindrical rings mirror one another.

7. The stent of claim 1, wherein each cylindrical ring comprises ring portions shaped like figure-eights.

8. The stent of claim 7, wherein the figure-eight portions comprise a linear bar arm and portions of two non-linear bar arms.

9. The stent of claim 1, wherein the peaks and valleys of one cylindrical ring being separately disposed in-phase with the peaks and valleys of the adjacent cylindrical ring.

10. The stent of claim 1, wherein the first arm axis being parallel to the longitudinal axis.

11. An expandable endovascular prosthesis, comprising:

a plurality of adjacent, expandable, undulating rings comprised of peaks and valleys, the peaks and valleys being defined by straight bar arms and nonlinear bar arms;

a plurality of links connecting adjacent rings, the links being connected to a central portion of the nonlinear bar arm on one ring and a peak of the adjacent ring;

wherein each ring comprises a plurality of elemental units, each elemental unit formed by one nonlinear bar arm in-between two straight bar arms; and

wherein the elemental units of adjacent rings are mirror-images of one another.

12. The prosthesis of claim 11, wherein each ring further comprises ring portions shaped like figure-eights.

13. The prosthesis of claim 12, wherein the figure-eight portions being defined by one straight bar arm and portions of two nonlinear bar arms.

14. The prosthesis of claim 11, wherein alternating rows of links consist of nonlinear links.

15. The prosthesis of claim 14, wherein alternating rows of links consist of linear links.

16. The prosthesis of claim 14, wherein the peak connected to the nonlinear link being formed by a v-shaped bar arm, and the v-shaped bar arm being connected to the adjacent nonlinear bar arm and the adjacent linear bar arm.

17. The prosthesis of claim 11, wherein links of adjacent rows being offset by ninety degrees from one another.

18. The prosthesis of claim 11, wherein the peaks and valleys of one ring being separately disposed in-phase with the peaks and valleys of the adjacent ring.

19. A method for inserting an intravascular stent into a vascular lumen, the intravascular stent including a plurality of connected cylindrical rings, the cylindrical rings having peaks and valleys formed by linear and nonlinear bar arms, elemental units defined by one nonlinear bar arm and two linear bar arms, the elemental units of adjacent cylindrical rings mirror one another, and the rings being connected by links, the links being connected to a central portion of the nonlinear bar arm and a peak of the adjacent ring, comprising:

mounting the intravascular stent onto a catheter in an unexpanded configuration;

advancing the catheter in the vasculature to position the unexpanded intravascular stent in a desired location in the vascular lumen;

expanding the cylindrical rings of the intravascular stent radially outward;

implanting the intravascular stent in the vascular lumen; and

withdrawing the catheter from the vascular lumen.

20. The method of claim 19, wherein the intravascular stent is mounted on an expandable member of the catheter.

21. A method for forming a stent, the stent having a pattern, comprising:

providing a stent pattern having a plurality of connected cylindrical rings, the cylindrical rings having peaks and valleys formed by linear and nonlinear bar arms, elemental units defined by one nonlinear bar arm and two linear bar arms, the elemental units of adjacent cylindrical rings mirror one another, and the rings being connected by links, the links being connected to a central portion of the nonlinear bar arm and a peak of the adjacent ring; and

laser cutting the stent pattern in a tube.

22. The method of claim 21, wherein the stent pattern is laser cut into a tube made of a biocompatible material.

23. The method of claim 21, wherein the stent pattern is laser cut into a tube made of stainless steel.

24. A method for forming a stent, the stent having a pattern comprising a plurality of connected cylindrical rings, the cylindrical rings having peaks and valleys formed by linear and nonlinear bar arms, elemental units defined by one nonlinear bar arm and two linear bar arms, the elemental units of adjacent cylindrical rings mirror one another, and the rings are connected by links, the links being connected to a central portion of the nonlinear bar arm and a peak of the adjacent ring, comprising:

laser cutting the stent pattern in a flat metal sheet;

rolling the cut metal sheet into a tube; and

providing a longitudinal weld along the tube to form the stent.

25. The method of claim 24, wherein the stent pattern is laser cut into a flat metal sheet made of a biocompatible material.

26. The method of claim 24, wherein the stent pattern is laser cut into a flat metal sheet made of stainless steel.

27. An intravascular stent, comprising:

a plurality of cylindrical rings, the cylindrical rings having elemental units defined by a nonlinear bar arm and two linear bar arms, the elemental units of adjacent cylindrical rings mirror one another;

means for connecting the plurality of cylindrical rings together;

means for preventing catheter rotation during use; and

means for enhancing flexibility.

28. The stent of claim 27, wherein the means for connecting the cylindrical rings together includes at least one link between adjacent rings.

29. The stent of claim 27, wherein the means for preventing catheter rotation during use includes the use of linear links to connect adjacent cylindrical rings.

30. The stent of claim 27, wherein the means for enhancing flexibility includes using alternating rows of nonlinear links to connect adjacent cylindrical rings.